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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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09/275,578 03/24/99 SHINOHARA

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EXAMINER

BERNATZ, K

ART UNIT PAPER NUMBER

1773

DATE MAILED:

04/12/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

| | | |
|------------------------------|-----------------|------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/275,578 | SHINOHARA ET AL. |
| | Examiner | Art Unit |
| | Kevin M Bernatz | 1773 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on ____.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-3,5-9 and 12 is/are pending in the application.

4a) Of the above claim(s) ____ is/are withdrawn from consideration.

5) Claim(s) ____ is/are allowed.

6) Claim(s) 1-3,5-9 and 12 is/are rejected.

7) Claim(s) 1 is/are objected to.

8) Claims ____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on ____ is/are objected to by the Examiner.

11) The proposed drawing correction filed on ____ is: a) approved b) disapproved.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. ____.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) Notice of References Cited (PTO-892) 18) Interview Summary (PTO-413) Paper No(s). ____.

16) Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) Notice of Informal Patent Application (PTO-152)

17) Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 20) Other: ____

DETAILED ACTION

Response to Amendment

1. Amendments to the specification and claims 1 - 12, filed on February 5th and 9th, 2001, have been entered in the above-identified application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Specification

3. The disclosure is objected to because of the following informalities: in the amended paragraph beginning on page 18, line 24 the NiP ratios are listed to be preferentially in the range "of about 67 to 85:35 to 15", which remains unclear. Applicant is recommended to amend the specification to read "of about (67 to 85):(33 [35] to 15)" or "of about 67:33 to 85:15 [35 to 15]." Note that 67+35 = 102%.

Appropriate correction is required.

Claim Objections

4. Claim 1 is objected to because of the following informalities: line 5 "thereof, a second [and] sputtered underlayer..." and lines 10 – 11 "formed [upon] by mechanical treatment...". Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. Claims 1, 2, 5 – 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tani et al. (339) in view of Okuyama et al. (607), Yamamoto (609) and Ross (621).

Regarding claim 1, Tani et al. disclose the claimed invention as described in the reasons of record (paper 6, paragraph 16).

Regarding the added limitation of the NiP layer being sputtered and the texture treatment being "mechanical treatment", these are process limitations and are given no weight in determining patentability (note that Tani et al. does disclose these limitations: col. 3, lines 50 – 65).

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP § 2113.

Regarding the additional limitation in the thickness of the NiP layer, Tani et al. disclose NiP layers of 30 nm or more (col. 3, lines 35 – 43 and Table 1).

Tani et al. fail to disclose a CoCrTa or CoCrTaNb magnetic layer.

However, Okuyama et al. teach a CoCrPtTaNb film for the reasons of record.

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Tani et al. to include a CoCrPtTaNb

magnetic layer as taught by Okuyama et al. in order to produce a recording medium with both low noise and high coercive force.

Neither Tani et al. nor Okuyama et al. disclose the concentration of P in the NiP layer.

However, Yamamoto teaches a Ni₇₅P₂₅ layer for the reasons of record.

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Tani et al. in view of Okuyama et al. to use 25%P in the NiP layer as taught by Yamamoto in order to produce a NiP underlayer with high mechanical strength and corrosion resistance.

None of Tani et al., Okuyama et al. or Yamamoto (hereafter referred to as T&O&Y) disclose a Cr adhesion layer.

However, Ross teaches that Cr adhesion layers can be used to enhance the adhesion between the **texture film** and underlying glass substrate (col. 3, lines 6 – 11 and col. 5, lines 1 - 12). Ross further teaches a positive recitation of applying a NiP layer directly on a Cr layer (col. 7, lines 11 – 16 and 40 – 44) (in this case the Cr layer is referred to as a "capping layer", but the naming of the layer is deemed irrelevant since the effect of the layer is inherent to the material and thickness, not the name used to designate the particular layer).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of T&O&Y to include a Cr adhesion layer as taught by Ross in order to improve the adhesion between the textured NiP layer and the underlying glass substrate.

The added limitations in claims 2, 5 – 8 and 12 are met by the above references for the reasons of record (paper 6, paragraph 16).

6. Claims 1, 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tani et al. (339) in view of Chang et al. (783), Yamamoto (609) and Ross (621).

Regarding claim 1, Tani et al. disclose the claimed invention as described above in paragraph 5.

Tani et al. fail to disclose a CoCrTa or CoCrTaNb magnetic layer.

However, Chang et al. teach a CoCrPtTa film as described in the reasons of record.

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Tani et al. to include a CoCrPtTa magnetic layer as taught by Chang et al. in order to produce a recording medium with both low noise and high coercive force.

Neither Tani et al. nor Chang et al. disclose the concentration of P in the NiP layer.

However, Yamamoto teaches a Ni₇₅%P₂₅% layer for the reasons of record.

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Tani et al. in view of Chang et al. to use 25%P in the NiP layer as taught by Yamamoto in order to produce a NiP underlayer with high mechanical strength and corrosion resistance.

None of Tani et al., Chang et al. or Yamamoto (hereafter referred to as T&C&Y) disclose a Cr adhesion layer.

However, Ross teaches that Cr adhesion layers can be used to enhance the adhesion between the **texture film** and underlying glass substrate (col. 3, lines 6 – 11 and col. 5, lines 1 - 12). Ross further teaches a positive recitation of applying a NiP layer directly on a Cr layer (col. 7, lines 11 – 16 and 40 – 44) (in this case the Cr layer is referred to as a “capping layer”, but the naming of the layer is deemed irrelevant since the effect of the layer is inherent to the material and thickness, not the name used to designate the particular layer).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant’s invention to modify the device of T&C&Y to include a Cr adhesion layer as taught by Ross in order to improve the adhesion between the textured NiP layer and the underlying glass substrate.

The added limitations in claims 3 and 9 are met by the above references for the reasons of record (paper 6, paragraph 18 and 19).

Response to Arguments

7. The rejection of claim 1 under 35 U.S.C § 112 – 1st Paragraph

This rejection has been overcome due to the amendment filed on February 5th and 9th, 2001.

8. The rejection of claims 1 - 11 under 35 U.S.C § 112 – 2nd Paragraph

This rejection has been overcome due to the amendment filed on February 5th and 9th, 2001.

9. The rejection of claims 1, 2, 5 – 8 and 10 - 12 under 35 U.S.C § 103(a) – Tani et al. in view of Okuyama et al.

This rejection has been overcome due to the amendment filed on February 5th and 9th, 2001.

10. The rejection of claim 4 under 35 U.S.C § 103(a) – Tani et al. in view of Okuyama et al. and Yamamoto

Applicants' arguments with respect to claim 4 (now amended claim 1) have been considered but are moot in view of the new ground(s) of rejection.

Applicants argue that the Cr adhesion layer is not taught by T&O&Y. The examiner agrees. Ross teaches a Cr adhesion layer for improved adhesion between metallic layers and the substrate.

Applicants further argue that T&O&Y are silent about the thickness and atom% P of the NiP layer. The examiner agrees with regard to the atom%, but notes that Tani et al. teach desired thickness values of the NiP layer (col. 3, lines 35 – 43 and Table 1).

Applicants further argue that the Okuyama et al. reference is not directed to improvement of the underlayer and that the Yamamoto reference differs from the claimed invention because an aluminum substrate instead of glass or silicon is used and the NiP layer is not sputtered. The applicants are reminded that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA

1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The Okuyama et al. reference purely provides motivation for the claimed magnetic layer composition, regardless of the underlayer(s) used. The Yamamoto reference purely provides motivation for the claimed NiP composition.

Applicants further argue that the Chang et al. reference fails to teach roughening the surface of the NiP via mechanical means. While the examiner agrees that Chang et al. fails to teach roughening the surface of the NiP via mechanical means, the examiner respectfully points out that Chang et al. is merely providing motivation for the desired range of surface roughness desired. The exact process used to obtain the surface roughness is not a patentably distinct limitation in a product claim barring a showing of criticality in the claimed process. Furthermore, Tani et al. disclose mechanical texturing as old in the art (col. 3, lines 60 – 65).

Applicants further argue that the Ross reference is different from the claimed invention because of the naming of the films. Applicants are reminded that the language of the claims are open to additional layers being present and the naming of a layer as an “adhesion layer” or “capping layer” is deemed irrelevant. See also paragraph 5 above for the applicability of Ross, as applied to applicant’s claimed invention.

Applicants are again reminded that the test of obviousness is not express suggestion of the claimed invention in any or all references but rather what the references taken collectively would suggest to those of ordinary skill in the art presumed to be familiar with them. *In re Rosselet*, 347 F.2d 847, 146 USPQ 183 (CCPA 1965); *In*

re Hedges, 783 F.2d 1038. In the instant case, the combined references are providing motivation for combinations that are old in the art and that meet all of applicants' claimed limitations.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (703) 308-1737. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on (703) 308-2367. The fax phone

numbers for the organization where this application or proceeding is assigned are (703) 305-6078 for regular communications and (703) 305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.



KMB
April 6, 2001



STEVAN A. RESAN
PRIMARY EXAMINER